APPENDIX C
AIR QUALITY DATA

Appendix C

Appendix C summarizes the methodologies used to conduct the criteria pollutant air quality impact analysis to support the Draft EIS for the ISDRA. This appendix describes criteria pollutant emission estimation data and assumptions used in the analysis.

Emission Calculation Methodology

As discussed in Section 4.11 of the Draft EIS, Air Quality, this impact analysis involved separate evaluations of criteria pollutant emission analysis for the following six scenarios:

- Existing Conditions – Year 1999 - 2000
- Future Baseline – Year 2012 – 2013
- Alternative 1 – Year 2012 – 2013
- Alternative 2 – Year 2012 – 2013
- Alternative 3 – Year 2012 – 2013
- Alternative 4 – Year 2012 – 2013

Emission inventories were developed for On-road Vehicle emission sources (automobile and recreational vehicles), and for Off Highway Vehicle (OHV)-related emission sources (motorcycle and other all-terrain vehicles).

Developing the emission inventories involved considerable data collection, to accurately reflect the existing and proposed levels of activity at the project site and the specific emission sources that would be involved.

Specific information used to calculate emissions included:

- Number and type of vehicle (quantity)
- Vehicle usage rates (hours per day)
- Number of annual and peak weekend visitors onsite
- Average speed of all vehicles
- Vehicle miles traveled (VMT) by vehicle type

The number of vehicles was estimated based on visitor activities for the ISDRA, as shown in Section 2. The most current motor vehicle emission factors were derived from the California Air Resources Board (ARB) Motor Vehicle Emission Inventory (MVEI) models EMFAC7G and BURDEN 7G (*http://www.arb.ca.gov/msei/mvei/mvdocs.htm*). OHV emission factors were derived from information available in the U.S. EPA's 1991 *Non-road Engine and Vehicle Emission Study*, U.S. EPA emission factors from AP-42, *Compilation of Air Pollutant Emission Factors*, as well as emission factors included in SCAQMD *CEQA Air Quality Handbook* (1993). Total emissions in terms of tons per year and pounds per day that would be generated during the calendar year and peak daily weekend periods were quantified.

Fugitive dust sources include paved and unpaved road-entrained dust. Emissions from these sources were quantified using emissions factors from the *Compilation of Air Pollutant Emission Factors (AP-42)*, SCAQMD *CEQA Air Quality Handbook* and available documentation addressing fugitive dust. Detailed emission calculation spreadsheets and estimated total construction emissions are provided below.

Existing Condition **Number of Vehicle Trips**

	OHV Use	Other Use	Total
Annual Vehicle Trips	446,274	49,586	495,860
Peak Day Vehicle Trips			
Halloween	9,378	1,042	10,420
Thanksgiving	16,065	1,785	17,850
New Year	10,710	1,190	11,900
Martin Luther King's Birthday	6,696	744	7,440
President's Day	13,383	1,487	14,870
Easter	10,710	1,190	11,900

Summary of Estimated Annual Emissions

(1999-2000) Annual Vehicle Trips	CO tons/year	ROG tons/year	NOx tons/year	SOx tons/year	PM10 tons/year
Existing Condition					
On Road	75.35	23.60	25.39	0.72	25.52
Off Highway	523.90	206.61	30.99	4.43	1238.12
Total	599.25	230.21	56.38	5.14	1263.64
Existing Baseline	599.25	230.21	56.38	5.14	1263.64
Net Emissions	0.00	0.00	0.00	0.00	0.00
De Minimis Threshold	100.00	50.00	100.00	100.00	100.00

Summary of Estimated Peak Daily Emissions

(1999-2000) Peak Day Vehicle Trips	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
On Road	2849.99	892.70	960.44	27.14	965.41
Off Highway	5504.61	2170.83	325.63	46.52	5377.53
Total for Halloween Weekend	8354.61	3063.54	1286.06	73.65	6342.94
On Road	4882.19	1529.25	1645.28	46.48	1653.80
Off Highway	9429.69	3718.75	557.81	79.69	9211.98
Total for Thanksgiving Weekend	14311.88	5248.00	2203.09	126.17	10865.78
On Road	3254.79	1019.50	1096.85	30.99	1102.54
Off Highway	6286.46	2479.17	371.88	53.13	6141.32
Total for New Year Weekend	9541.25	3498.67	1468.73	84.11	7243.86
On Road	2034.93	637.40	685.76	19.38	689.32
Off Highway	3930.36	1550.00	232.50	33.21	3839.62
Martin Luther King's Birthday	5965.29	2187.40	918.26	52.59	4528.93
On Road	4067.12	1273.95	1370.61	38.72	1377.71
Off Highway	7855.43	3097.92	464.69	66.38	7674.07
Total for President's Day	11922.55	4371.86	1835.29	105.11	9051.78
On Road	3254.79	1019.50	1096.85	30.99	1102.54
Off Highway	6286.46	2479.17	371.88	53.13	6141.32
Total for Easter Weekend	9541.25	3498.67	1468.73	84.11	7243.86

Peak Day Baseline (1999-2000)	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	8354.61	3063.54	1286.06	73.65	6342.94
Thanksgiving	14311.88	5248.00	2203.09	126.17	10865.78
New Year	9541.25	3498.67	1468.73	84.11	7243.86
Martin Luther King's Birthday	5965.29	2187.40	918.26	52.59	4528.93
President's Day	11922.55	4371.86	1835.29	105.11	9051.78
Easter	9541.25	3498.67	1468.73	84.11	7243.86

Net Emissions	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	0.00	0.00	0.00	0.00	0.00
Thanksgiving	0.00	0.00	0.00	0.00	0.00
New Year	0.00	0.00	0.00	0.00	0.00
Martin Luther King's Birthday	0.00	0.00	0.00	0.00	0.00
President's Day	0.00	0.00	0.00	0.00	0.00
Easter	0.00	0.00	0.00	0.00	0.00
Significance Threshold	550	137	137	137	137

FUGITIVE PM10 EMISSION FACTORS

(I) POTENTIAL SOURCES:

(1) OHV travel on Unpaved Surfaces.
(2) Motor Vehicle Travel on Paved Roads.

(II) EMISSION FACTORS AND ASSUMPTIONS:

(1) OHV Travel on Unpaved Roads.

Emission Factor (SCAQMD Table A9-9-D): (reference 1)

EF(1) = 2.1 (G/12) (H/30) [(J/3)^0.7] [(I/4)^0.5] [(365-K)/365] lb/vehicle mile traveled (vmt)
where:

G = Silt Loading (%):	6	(reference 1)
H = Mean Vehicle Speed (mph):	15	(reference 1)
J = Mean Vehicle Weight (tons) - see tables below		(reference 1)
I = Number of Wheels - see tables below		(reference 1)
K = Number of Days > 0.01 in. Precipitation:	18	(reference 1)

4-Wheel All Terrain Vehicles		
Parameter	Loaded	Unloaded
J	1	0.5
I	4	4
PM10 Emission Rate lb/VMT	0.23	0.14

Off-Highway Motorcycles		
Parameter	Loaded	Unloaded
J	0.35	0.25
I	2	2
PM10 Emission Rate lb/VMT	0.080	0.060

Average OHV Emission Rate = 0.16

	OHV	Estimated Emission Rate	
Annual OHV	15,619,590	1210.52	tons
Halloween	32,823	5087.57	pounds
Thanksgiving	56,228	8715.26	pounds
New Year	37,485	5810.18	pounds
Martin Luther King	23,436	3632.58	pounds
Presidents Day	46,841	7260.28	pounds
Easter	37,485	5810.18	pounds

(2) Passenger Vehicle Travel on Paved Highways.
Emission Factor (SCAQMD Table A9-9-B):

EF(3) = V x G lb

V = Vehicle Miles Travelled

G = 0.0064 lb/VMT (For Major Streets/Highways with street cleaning)

VMT = 7437900

EF(3) =	47602.56	pounds		
Annual OHV	23.80128	tons		
Halloween			900.288	pounds
Peak Arrival day (veh/day)			140670	
Thanksgiving			1542.24	pounds
Peak Arrival day (veh/day)			240975	
New Year			1028.16	pounds
Peak Arrival day (veh/day)			160650	
Martin Luther King			642.816	pounds
Peak Arrival day (veh/day)			100440	
Presidents Day			1284.768	pounds
Peak Arrival day (veh/day)			200745	
Easter			1028.16	pounds
Peak Arrival day (veh/day)			160650	

TABLE
OPERATIONAL EMISSIONS FROM OHV SOURCE

Emission Factors (EF) from Table A9-8-B: lb/hp-hr

Off-Highway Vehicles	*HP rating*	*Loading percent*	*Max hrs/day*	*Max-daily HP-Hr*	*EF unit*	*EF CO*	*lb/day CO*	*EF ROG*	*lb/day ROG*	*EF NOx*	*lb/day NOx*	*EF SOx*	*lb/day SOx*	*EF PM10*	*lb/day PM10*
Motorcycles	25	100%	6	150	g/hp-hr	80	1.0582011	10	0.1323	1.5	0.01984	0.95	0.0126	8.2	0.1085
All Terrain Vehicles	125	100%	6	750	g/hp-hr	97.5	1.2896825	60	0.7937	9	0.11905	0.55	0.0073	1.15	0.0152
TOTAL, lb							**2.35**		**0.93**		**0.14**		**0.02**		**0.12**
Annual	446,274						523.8997		206.61		30.9913		4.4273		27.597
Halloween	9,378						5504.6131		2170.8		325.625		46.518		289.96
Thanksgiving	16,065						9429.6875		3718.8		557.813		79.688		496.72
New Year	10,710						6286.4583		2479.2		371.875		53.125		331.15
MLK	6,696						3930.3571		1550		232.5		33.214		207.04
Presidents	13,383						7855.4315		3097.9		464.688		66.384		413.79
Easter	10,710						6286.4583		2479.2		371.875		53.125		331.15
AQ Significance Thresholds							**550**		**137**		**137**		**137**		**137**

Source: EPA Nonroad Engine and Vehicle Study, 1991

On-Road Mobile Source Emissions Factors

	Running Exhaust					Start-Up	Start-Up	Hot Soak	Diurnal	Start-Up
	CO	ROG	NOx	SOx	PM10	CO	ROG	ROG	ROG	NOx
Vehicle Type	g/mile	g/mile	g/mile	g/mile	g/mile	g/trip	g/trip	g/trip	g/trip	g/trip
Light-Duty Trucks - Cat	3.76	0.28	0.74	0.01	0.04	45.7	4.08	0.62	18.96	2.42
Heavy Heavy Duty Diesel Truck	7.2	1.22	9.2	0.32	0.72	0	0	0	0	0

Estimated Vehicle Emissions
Annual Average

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/year	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day	
Light-Duty Trucks - Cat	371895	15	5578425	743790	121177.427	42200.339	13068.797	122.981	491.925	
Heavy Heavy Duty Diesel Truck	123965	15	1859475	247930	29515.476	5001.233	37714.220	1311.799	2951.548	
Total Off-Site			7437900		**75.346**	**23.601**	**25.392**	**0.717**	**1.722**	**Tons/year**

Halloween

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	7,034	15	105502.5	14067	2291.780	798.118	247.165	2.326	9.304
Heavy Heavy Duty Diesel Truck	2,345	15	35167.5	4689	558.214	94.586	713.274	24.810	55.821
Total Off-Site			140670		**2849.994**	**892.704**	**960.439**	**27.135**	**65.125**

Thanksgiving

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	12,049	15	180731.25	24097.5	3925.938	1367.217	423.406	3.984	15.938
Heavy Heavy Duty Diesel Truck	4,016	15	60243.75	8032.5	956.250	162.031	1221.875	42.500	95.625
Total Off-Site			240975		**4882.188**	**1529.249**	**1645.281**	**46.484**	**111.563**

New Year

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	8,033	15	120487.5	16065	2617.292	911.478	282.271	2.656	10.625
Heavy Heavy Duty Diesel Truck	2,678	15	40162.5	5355	637.500	108.021	814.583	28.333	63.750
Total Off-Site			160650		**3254.792**	**1019.499**	**1096.854**	**30.990**	**74.375**

Martin Luther King's Birthday

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	5,022	15	75330	10044	1636.357	569.865	176.479	1.661	6.643
Heavy Heavy Duty Diesel Truck	1,674	15	25110	3348	398.571	67.536	509.286	17.714	39.857
Total Off-Site			100440		**2034.929**	**637.401**	**685.764**	**19.375**	**46.500**

President's Day

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	10,037	15	150558.75	20074.5	3270.515	1138.965	352.720	3.319	13.277
Heavy Heavy Duty Diesel Truck	3,346	15	50186.25	6691.5	796.607	134.981	1017.887	35.405	79.661
Total Off-Site			200745		**4067.122**	**1273.946**	**1370.607**	**38.724**	**92.938**

Easter

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	8,033	15	120487.5	16065	2617.292	911.478	282.271	2.656	10.625
Heavy Heavy Duty Diesel Truck	2,678	15	40162.5	5355	637.500	108.021	814.583	28.333	63.750
Total Off-Site			160650		**3254.792**	**1019.499**	**1096.854**	**30.990**	**74.375**

SOURCE: CARB MVEI7G Program, 2001 South Coast Air Basin (summer), non-enhanced I/M, 35 mph

ASSUMPTIONS:

1. The hydrocarbon emission factors presented are Reactive Organic Gas (ROG) Efs. The ROG number is a combination of the ROG exhaust + running evaporative losses.
2. The PM10 emission factors are Total PM10 Efs. The PM10 Efs include the exhaust PM + Tire Wear PM + Brake Wear PM.
3. Emission factors from EMFAC7G (updated February 2000) were used.
4. All summertime emission factors were calculated at 75 F.
5. Emission factors assume 100% weighting to summertime fuel mix.
6. Emission factors include Running Exhaust, Running Evaporative Losses, and PM10 from tire wear and brake wear.
7. Sulfur oxide as SO2 emissions were calculated by converting the total daily SO2 mass into grams and then dividing by the total daily vehicle miles traveled. The total daily SO2 and total daily vehicle miles traveled were obtained from the BURDEN output for each modeled year.

Future Baseline **Number of Vehicle Trips**

	OHV Use	Other Use	Total
Annual Vehicle Trips	925,714	102,857	1,028,571
Peak Day Vehicle Trips			
Halloween	19,445	2,161	21,606
Thanksgiving	33,330	3,703	37,033
New Year	22,219	2,469	24,688
Martin Luther King's Birthday	13,884	1,543	15,427
President's Day	27,769	3,085	30,854
Easter	22,219	2,469	24,688

Summary of Estimated Annual Emissions

Annual Vehicle Trips	CO tons/year	ROG tons/year	NOx tons/year	SOx tons/year	PM10 tons/year
Future Baseline					
On Road	149.66	47.42	52.41	1.49	52.94
Off Highway	1086.73	428.57	64.29	9.18	2568.24
Total	1236.39	476.00	116.70	10.67	2621.19
Existing Condition	599.25	230.21	56.38	5.14	1263.64
Net Emissions	637.14	245.79	60.32	5.53	1357.55
De Minimis Threshold	100.00	50.00	100.00	100.00	100.00

Summary of Estimated Peak Daily Emissions

(2012-2013) Peak Day Vehicle Trips	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
On Road	5658.71	1793.16	1981.84	56.27	2001.80
Off Highway	11413.89	4501.25	675.19	96.46	11150.37
Halloween	17072.60	6294.41	2657.02	152.72	13152.17
On Road	9699.12	3073.50	3396.90	96.44	3431.11
Off Highway	19563.57	7715.21	1157.28	165.33	19111.90
Thanksgiving	29262.69	10788.71	4554.18	261.77	22543.00
On Road	6465.91	2048.95	2264.54	64.29	2287.34
Off Highway	13042.03	5143.33	771.50	110.21	12740.92
New Year	19507.93	7192.28	3036.04	174.51	15028.26
On Road	4040.41	1280.34	1415.06	40.17	1429.31
Off Highway	8149.68	3213.96	482.09	68.87	7961.53
Martin Luther King's Birthday	12190.09	4494.30	1897.15	109.05	9390.84
On Road	8080.81	2560.69	2830.12	80.35	2858.62
Off Highway	16299.36	6427.92	964.19	137.74	15923.05
President's Day	24380.17	8988.60	3794.31	218.09	18781.68
On Road	6465.91	2048.95	2264.54	64.29	2287.34
Off Highway	13042.03	5143.33	771.50	110.21	12740.92
Easter	19507.93	7192.28	3036.04	174.51	15028.26

Existing Condition (1999-2000) Peak Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	8354.61	3063.54	1286.06	73.65	6342.94
Thanksgiving	14311.88	5248	2203.09	126.17	10865.78
New Year	9541.25	3498.67	1468.73	84.11	7243.86
Martin Luther King's Birthday	5965.29	2187.4	918.26	52.59	4528.93
President's Day	11922.55	4371.86	1835.29	105.11	9051.78
Easter	9541.25	3498.67	1468.73	84.11	7243.86

Net Emissions (Future Baseline - Existing Condition)	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	8717.99	3230.87	1370.96	79.07	6809.23
Thanksgiving	14950.81	5540.71	2351.09	135.60	11677.22
New Year	9966.68	3693.61	1567.31	90.40	7784.40
Martin Luther King's Birthday	6224.80	2306.90	978.89	56.46	4861.91
President's Day	12457.62	4616.74	1959.02	112.98	9729.90
Easter	9966.68	3693.61	1567.31	90.40	7784.40
Significance Threshold	550	137	137	137	137

FUGITIVE PM10 EMISSION FACTORS

(I) POTENTIAL SOURCES:

(1) OHV travel on Unpaved Surfaces.
(2) Motor Vehicle Travel on Paved Roads.

(II) EMISSION FACTORS AND ASSUMPTIONS:

(1) OHV Travel on Unpaved Roads.

Emission Factor (SCAQMD Table A9-9-D): (reference 1)

EF(1) = 2.1 (G/12) (H/30) [(J/3)^0.7] [(I/4)^0.5] [(365-K)/365] lb/vehicle mile traveled (vmt)
where:

G = Silt Loading (%):	6	(reference 1)
H = Mean Vehicle Speed (mph):	15	(reference 1)
J = Mean Vehicle Weight (tons) - see tables below		(reference 1)
I = Number of Wheels - see tables below		(reference 1)
K = Number of Days > 0.01 in. Precipitation:	18	(reference 1)

4-Wheel All Terrain Vehicles		
Parameter	Loaded	Unloaded
J	1	0.5
I	4	4
PM10 Emission Rate lb/VMT	0.23	0.14

Off-Highway Motorcycles		
Parameter	Loaded	Unloaded
J	0.35	0.25
I	2	2
PM10 Emission Rate lb/VMT	0.080	0.060

Average OHV Emission Rate = 0.16

	OHV	Estimated Emission Rate	
Annual OHV	32,399,990	2511.00	tons
Halloween	68,059	10549.13	pounds
Thanksgiving	116,654	18081.36	pounds
New Year	77,767	12053.92	pounds
Martin Luther King	48,595	7532.23	pounds
Presidents Day	97,190	15064.47	pounds
Easter	77,767	12053.92	pounds

(2) Passenger Vehicle Travel on Paved Highways.
Emission Factor (SCAQMD Table A9-9-B):

EF(2) = V x G lb

V = Vehicle Miles Traveled

G = 0.0064 lb/VMT (For Major Streets/Highways with street cleaning)

VMT =	15428565	
EF(2) =	98742.816	
	49.37	tons
	Estimated Emission Rate	
Halloween	1866.758602	pounds
Peak Arrival day (veh/day)	291681.0315	
Thanksgiving	3199.651546	pounds
Peak Arrival day (veh/day)	499945.554	
New Year	2133.04343	pounds
Peak Arrival day (veh/day)	333288.036	
Martin Luther King	1332.892944	pounds
Peak Arrival day (veh/day)	208264.5225	
Presidents Day	2665.785888	pounds
Peak Arrival day (veh/day)	416529.045	
Easter	2133.04343	pounds
Peak Arrival day (veh/day)	333288.036	

TABLE
OPERATIONAL EMISSIONS FROM OHV SOURCE

Emission Factors (EF) from Table A9-8-B: lb/hp-hr

Off-Highway Vehicles	*HP rating*	*Loading percent*	*Max hrs/day*	*Max-daily HP-Hr*	*EF unit*	*EF CO*	*lb/day CO*	*EF ROG*	*lb/day ROG*	*EF NOx*	*lb/day NOx*	*EF SOx*	*lb/day SOx*	*EF PM10*	*lb/day PM10*
Motorcycles	25	100%	6	150	g/hp-hr	80	1.0582011	10	0.1323	1.5	0.01984	0.95	0.0126	8.2	0.1085
All Terrain Vehicles	125	100%	6	750	g/hp-hr	97.5	1.2896825	60	0.7937	9	0.11905	0.55	0.0073	1.15	0.0152
TOTAL, lb							**2.35**		**0.93**		**0.14**		**0.02**		**0.12**
Annual	925,714						1086.7344		428.57		64.2857		9.1837		57.245
Halloween	19,445						11413.885		4501.3		675.188		96.455		601.24
Thanksgiving	33,330						19563.566		7715.2		1157.28		165.33		1030.5
New Year	22,219						13042.025		5143.3		771.5		110.21		687
MLK	13,884						8149.6809		3214		482.094		68.871		429.29
Presidents	27,769						16299.362		6427.9		964.188		137.74		858.59
Easter	22,219						13042.025		5143.3		771.5		110.21		687
AQ Significance Thresholds							**550**		**137**		**137**		**137**		**137**

Source: EPA Nonroad Engine and Vehicle Study, 1991

On-Road Mobile Source Emissions Factors

	Running Exhaust					Start-Up	Start-Up	Hot Soak	Diurnal	Start-Up
	CO	ROG	NOx	SOx	PM10	CO	ROG	ROG	ROG	NOx
Vehicle Type	g/mile	g/mile	g/mile	g/mile	g/mile	g/trip	g/trip	g/trip	g/trip	g/trip
Light-Duty Trucks - Cat	3.24	0.16	0.72	0.01	0.04	45.7	4.08	0.62	18.96	2.42
Heavy Heavy Duty Diesel Truck	7.2	1.22	9.2	0.32	0.72	0	0	0	0	0

Estimated Vehicle Emissions
Annual Average

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10	
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/year	lb/day	lb/day	lb/day	lb/day	
Light-Duty Trucks - Cat	771428.25	15	11571424	1542856.5	238095.139	84475.672	26598.628	255.102	1020.408	
Heavy Heavy Duty Diesel Truck	257142.75	15	3857141.3	514285.5	61224.464	10374.145	78231.260	2721.087	6122.446	
Total Off-Site			15428565		**149.660**	**47.425**	**52.415**	**1.488**	**3.571**	**Tons/year**

Halloween

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	14,584	15	218760.77	29168.103	4501.250	1597.035	502.854	4.823	19.291
Heavy Heavy Duty Diesel Truck	4,861	15	72920.258	9722.7011	1157.464	196.126	1478.982	51.443	115.746
Total Off-Site			291681.03		**5658.715**	**1793.160**	**1981.836**	**56.266**	**135.038**

Thanksgiving

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	24,997	15	374959.17	49994.555	7715.209	2737.341	861.899	8.266	33.065
Heavy Heavy Duty Diesel Truck	8,332	15	124986.39	16664.852	1983.911	336.163	2534.997	88.174	198.391
Total Off-Site			499945.55		**9699.120**	**3073.503**	**3396.896**	**96.440**	**231.456**

New Year

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	16,664	15	249966.03	33328.804	5143.334	1824.844	574.584	5.511	22.043
Heavy Heavy Duty Diesel Truck	5,555	15	83322.009	11109.601	1322.572	224.102	1689.953	58.781	132.257
Total Off-Site			333288.04		**6465.905**	**2048.947**	**2264.536**	**64.292**	**154.300**

Martin Luther King's Birthday

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	10,413	15	156198.39	20826.452	3213.959	1140.306	359.045	3.444	13.774
Heavy Heavy Duty Diesel Truck	3,471	15	52066.131	6942.1507	826.447	140.037	1056.015	36.731	82.645
Total Off-Site			208264.52		**4040.405**	**1280.343**	**1415.060**	**40.174**	**96.419**

President's Day

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	20,826	15	312396.78	41652.904	6427.917	2280.612	718.090	6.887	27.548
Heavy Heavy Duty Diesel Truck	6,942	15	104132.26	13884.301	1652.893	280.074	2112.030	73.462	165.289
Total Off-Site			416529.04		**8080.810**	**2560.686**	**2830.120**	**80.349**	**192.838**

Easter

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	16,664	15	249966.03	33328.804	5143.334	1824.844	574.584	5.511	22.043
Heavy Heavy Duty Diesel Truck	5,555	15	83322.009	11109.601	1322.572	224.102	1689.953	58.781	132.257
Total Off-Site			333288.04		**6465.905**	**2048.947**	**2264.536**	**64.292**	**154.300**

SOURCE: CARB MVEI7G Program, 2001 South Coast Air Basin (summer), non-enhanced I/M, 35 mph

ASSUMPTIONS:

1. The hydrocarbon emission factors presented are Reactive Organic Gas (ROG) Efs. The ROG number is a combination of the ROG exhaust + running evaporative losses.
2. The PM10 emission factors are Total PM10 Efs. The PM10 Efs include the exhaust PM + Tire Wear PM + Brake Wear PM.
3. Emission factors from EMFAC7G (updated February 2000) were used.
4. All summertime emission factors were calculated at 75 F.
5. Emission factors assume 100% weighting to summertime fuel mix.
6. Emission factors include Running Exhaust, Running Evaporative Losses, and PM10 from tire wear and brake wear.
7. Sulfur oxide as SO2 emissions were calculated by converting the total daily SO2 mass into grams and then dividing by the total daily vehicle miles traveled. The total daily SO2 and total daily vehicle miles traveled were obtained from the BURDEN output for each modeled year.

Alternative 1 **Number of Vehicle Trips**

	OHV Use	Other Use	Total
Annual Vehicle Trips	1,065,087	118,343	1,183,430
Peak Day Vehicle Trips			
Halloween	22,365	2,485	24,850
Thanksgiving	38,345	4,261	42,605
New Year	25,557	2,840	28,397
Martin Luther King's Birthday	15,980	1,776	17,755
President's Day	31,960	3,551	35,511
Easter	25,557	2,840	28,397

Summary of Estimated Annual Emissions

(2012-2013) Annual Vehicle Trips	CO tons/year	ROG tons/year	NOx tons/year	SOx tons/year	PM10 tons/year
Alternative 1					
On Road	172.19	54.57	60.31	1.71	60.91
Off Highway	1250.35	493.10	73.96	10.57	2954.91
Total	1422.54	547.66	134.27	12.28	3015.83
Future Baseline	1236.39	476	116.7	10.67	2621.19
Net Emissions	186.15	71.66	17.57	1.61	394.64
De Minimis Threshold	100.00	50.00	100.00	100.00	100.00

Summary of Estimated Peak Daily Emissions

(2012-2013) Peak Day Vehicle Trips	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
On Road	6,508.33	2,062.39	2,279.40	64.71	2,302.35
Off Highway	13,127.60	5,177.08	776.56	110.94	12,824.52
Total for Halloween Weekend	19,635.94	7,239.47	3,055.96	175.65	15,126.88
On Road	11,158.45	3,535.94	3,907.99	110.95	3,947.35
Off Highway	22,507.11	8,876.04	1,331.41	190.20	21,987.48
Total for Thanksgiving Weekend	33,665.56	12,411.99	5,239.40	301.15	25,934.83
On Road	7,437.31	2,356.77	2,604.75	73.95	2,630.98
Off Highway	15,001.39	5,916.04	887.41	126.77	14,655.05
Total for New Year Weekend	22,438.70	8,272.81	3,492.15	200.72	17,286.03
On Road	4,650.12	1,473.55	1,628.60	46.24	1,645.00
Off Highway	9,379.50	3,698.96	554.84	79.26	9,162.95
Martin Luther King's Birthday	14,029.62	5,172.51	2,183.44	125.50	10,807.95
On Road	9,300.50	2,947.19	3,257.29	92.48	3,290.09
Off Highway	18,759.53	7,398.13	1,109.72	158.53	18,326.42
Total for President's Day	28,060.03	10,345.31	4,367.01	251.01	21,616.52
On Road	7,437.31	2,356.77	2,604.75	73.95	2,630.98
Off Highway	15,001.39	5,916.04	887.41	126.77	14,655.05
Total for Easter Weekend	22,438.70	8,272.81	3,492.15	200.72	17,286.03

Peak Day Baseline (1999-2000)	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	17072.6	6294.41	2657.02	152.72	13152.17
Thanksgiving	29262.69	10788.71	4554.18	261.77	22543
New Year	19507.93	7192.28	3036.04	174.51	15028.26
Martin Luther King's Birthday	12190.09	4494.3	1897.15	109.05	9390.84
President's Day	24380.17	8988.6	3794.31	218.09	18781.68
Easter	19507.93	7192.28	3036.04	174.51	15028.26

Net Emissions	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	2563.34	945.06	398.94	22.93	1974.71
Thanksgiving	4402.87	1623.28	685.22	39.38	3391.83
New Year	2930.77	1080.53	456.11	26.21	2257.77
Martin Luther King's Birthday	1839.53	678.21	286.29	16.45	1417.11
President's Day	3679.86	1356.71	572.70	32.92	2834.84
Easter	2930.77	1080.53	456.11	26.21	2257.77
Significance Threshold	550	137	137	137	137

FUGITIVE PM10 EMISSION FACTORS

(I) POTENTIAL SOURCES:

(1) OHV travel on Unpaved Surfaces.
(2) Motor Vehicle Travel on Paved Roads.

(II) EMISSION FACTORS AND ASSUMPTIONS:

(1) OHV Travel on Unpaved Roads.

Emission Factor (SCAQMD Table A9-9-D): (reference 1)

EF(1) = 2.1 (G/12) (H/30) [(J/3)^0.7] [(I/4)^0.5] [(365-K)/365] lb/vehicle mile traveled (vmt)
where:

G = Silt Loading (%):	6	(reference 1)
H = Mean Vehicle Speed (mph):	15	(reference 1)
J = Mean Vehicle Weight (tons) - see tables below		(reference 1)
I = Number of Wheels - see tables below		(reference 1)
K = Number of Days > 0.01 in. Precipitation:	18	(reference 1)

4-Wheel All Terrain Vehicles		
Parameter	Loaded	Unloaded
J	1	0.5
I	4	4
PM10 Emission Rate lb/VMT	0.23	0.14

Off-Highway Motorcycles		
Parameter	Loaded	Unloaded
J	0.35	0.25
I	2	2
PM10 Emission Rate lb/VMT	0.080	0.060

Average OHV Emission Rate = 0.16

	OHV	Estimated Emission Rate	
Annual OHV	37,278,045	2889.05	tons
Halloween	78,278	12133.01	pounds
Thanksgiving	134,206	20801.89	pounds
New Year	89,451	13864.84	pounds
Martin Luther King	55,928	8668.88	pounds
Presidents Day	111,860	17338.25	pounds
Easter	89,451	13864.84	pounds

(2) Passenger Vehicle Travel on Paved Highways.

Emission Factor (SCAQMD Table A9-9-B):

EF(2) = V x G lb

V = Vehicle Miles Traveled
G = 0.0064 lb/VMT (For Major Streets/Highways with street cleaning)

VMT =	17751450	
EF(2) =	113609.28	pounds
Annual	56.80464	tons
	Estimated Emission Rate	
Halloween	2147.04	pounds
Peak Arrival day (veh/day)	335475	
Thanksgiving	3681.072	pounds
Peak Arrival day (veh/day)	575167.5	
New Year	2453.5008	pounds
Peak Arrival day (veh/day)	383359.5	
Martin Luther King	1534.032	pounds
Peak Arrival day (veh/day)	239692.5	
Presidents Day	3068.1504	pounds
Peak Arrival day (veh/day)	479398.5	
Easter	2453.5008	pounds
Peak Arrival day (veh/day)	383359.5	

TABLE
OPERATIONAL EMISSIONS FROM OHV SOURCE

Emission Factors (EF) from Table A9-8-B: lb/hp-hr

Off-Highway Vehicles	*HP rating*	*Loading percent*	*Max hrs/day*	*Max-daily HP-Hr*	*EF unit*	*EF CO*	*lb/day CO*	*EF ROG*	*lb/day ROG*	*EF NOx*	*lb/day NOx*	*EF SOx*	*lb/day SOx*	*EF PM10*	*lb/day PM10*
Motorcycles	25	100%	6	150	g/hp-hr	80	1.0582011	10	0.1323	1.5	0.01984	0.95	0.0126	8.2	0.1085
All Terrain Vehicles	125	100%	6	750	g/hp-hr	97.5	1.2896825	60	0.7937	9	0.11905	0.55	0.0073	1.15	0.0152
TOTAL, lb							**2.35**		**0.93**		**0.14**		**0.02**		**0.12**
Annual		1,065,087					1250.3501		493.1		73.9644		10.566		65.864
Halloween		22,365					13127.604		5177.1		776.563		110.94		691.51
Thanksgiving		38,345					22507.106		8876		1331.41		190.2		1185.6
New Year		25,557					15001.391		5916		887.406		126.77		790.21
MLK		15,980					9379.5015		3699		554.844		79.263		494.08
Presidents		31,960					18759.531		7398.1		1109.72		158.53		988.18
Easter		25,557					15001.391		5916		887.406		126.77		790.21
AQ Significance Thresholds							**550**		**137**		**137**		**137**		**137**

Source: EPA Nonroad Engine and Vehicle Study, 1991

On-Road Mobile Source Emissions Factors

	Running Exhaust					Start-Up	Start-Up	Hot Soak	Diurnal	Start-Up
	CO	ROG	NOx	SOx	PM10	CO	ROG	ROG	ROG	NOx
Vehicle Type	g/mile	g/mile	g/mile	g/mile	g/mile	g/trip	g/trip	g/trip	g/trip	g/trip
Light-Duty Trucks - Cat	3.24	0.16	0.72	0.01	0.04	45.7	4.08	0.62	18.96	2.42
Heavy Heavy Duty Diesel Truck	7.2	1.22	9.2	0.32	0.72	0	0	0	0	0

Estimated Vehicle Emissions
Annual Average

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/year	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day	
Light-Duty Trucks - Cat	887572.5	15	13313588	1775145	273942.130	97194.112	30603.249	293.509	1174.038	
Heavy Heavy Duty Diesel Truck	295857.5	15	4437862.5	591715	70442.262	11936.050	90009.557	3130.767	7044.226	
Total Off-Site			17751450		**172.192**	**54.565**	**60.306**	**1.712**	**4.109**	**Tons/year**

Halloween

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	16,774	15	251606.25	33547.5	5177.083	1836.819	578.354	5.547	22.188
Heavy Heavy Duty Diesel Truck	5,591	15	83868.75	11182.5	1331.250	225.573	1701.042	59.167	133.125
Total Off-Site			335475		**6508.333**	**2062.392**	**2279.396**	**64.714**	**155.313**

Thanksgiving

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	28,758	15	431375.63	57516.75	8876.042	3149.202	991.581	9.510	38.040
Heavy Heavy Duty Diesel Truck	9,586	15	143791.88	19172.25	2282.411	386.742	2916.414	101.440	228.241
Total Off-Site			575167.5		**11158.452**	**3535.943**	**3907.994**	**110.951**	**266.281**

New Year

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	19,168	15	287519.63	38335.95	5916.042	2099.000	660.906	6.339	25.354
Heavy Heavy Duty Diesel Truck	6,389	15	95839.875	12778.65	1521.268	257.770	1943.842	67.612	152.127
Total Off-Site			383359.5		**7437.310**	**2356.770**	**2604.749**	**73.951**	**177.481**

Martin Luther King's Birthday

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	11,985	15	179769.38	23969.25	3698.958	1312.383	413.226	3.963	15.853
Heavy Heavy Duty Diesel Truck	3,995	15	59923.125	7989.75	951.161	161.169	1215.372	42.274	95.116
Total Off-Site			239692.5		**4650.119**	**1473.552**	**1628.599**	**46.237**	**110.969**

President's Day

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	23,970	15	359548.88	47939.85	7398.125	2624.840	826.476	7.927	31.706
Heavy Heavy Duty Diesel Truck	7,990	15	119849.63	15979.95	1902.375	322.347	2430.813	84.550	190.238
Total Off-Site			479398.5		**9300.500**	**2947.187**	**3257.289**	**92.477**	**221.944**

Easter

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	19,168	15	287519.63	38335.95	5916.042	2099.000	660.906	6.339	25.354
Heavy Heavy Duty Diesel Truck	6,389	15	95839.875	12778.65	1521.268	257.770	1943.842	67.612	152.127
Total Off-Site			383359.5		**7437.310**	**2356.770**	**2604.749**	**73.951**	**177.481**

SOURCE: CARB MVEI7G Program, 2001 South Coast Air Basin (summer), non-enhanced I/M, 35 mph

ASSUMPTIONS:

1. The hydrocarbon emission factors presented are Reactive Organic Gas (ROG) Efs. The ROG number is a combination of the ROG exhaust + running evaporative losses.
2. The PM10 emission factors are Total PM10 Efs. The PM10 Efs include the exhaust PM + Tire Wear PM + Brake Wear PM.
3. Emission factors from EMFAC7G (updated February 2000) were used.
4. All summertime emission factors were calculated at 75 F.
5. Emission factors assume 100% weighting to summertime fuel mix.
6. Emission factors include Running Exhaust, Running Evaporative Losses, and PM10 from tire wear and brake wear.
7. Sulfur oxide as SO2 emissions were calculated by converting the total daily SO2 mass into grams and then dividing by the total daily vehicle miles traveled. The total daily SO2 and total daily vehicle miles traveled were obtained from the BURDEN output for each modeled year.

Alternative 2 **Number of Vehicle Trips**

	OHV Use	Other Use	Total
Annual Vehicle Trips	841,887	93,543	935,430
Peak Day Vehicle Trips			
Halloween	15,864	1,763	17,627
Thanksgiving	27,190	3,021	30,211
New Year	18,124	2,014	20,138
Martin Luther King's Birthday	11,327	1,259	12,585
President's Day	22,661	2,518	25,179
Easter	18,124	2,014	20,138

Summary of Estimated Annual Emissions

Annual Vehicle Trips	CO tons/year	ROG tons/year	NOx tons/year	SOx tons/year	PM10 tons/year
Future Baseline (2012-2013)					
On Road	136.11	43.13	47.67	1.35	48.15
Off Highway	988.33	389.76	58.46	8.35	2335.68
Total	1124.43	432.89	106.13	9.71	2383.83
Future Baseline	1236.39	476	116.7	10.67	2621.19
Net Emissions	-111.96	-43.11	-10.57	-0.96	-237.36
De Minimis Threshold	100.00	50.00	100.00	100.00	100.00

Summary of Estimated Peak Daily Emissions

(2012-2013) Peak Day Vehicle Trips	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
On Road	4,616.60	1,462.93	1,616.86	45.90	1,633.14
Off Highway	9,311.88	3,672.29	550.84	78.69	9,096.90
Halloween	13,928.48	5,135.22	2,167.70	124.60	10,730.04
On Road	7,912.40	2,507.32	2,771.14	78.67	2,799.05
Off Highway	15,959.68	6,293.96	944.09	134.87	15,591.21
Thanksgiving	23,872.08	8,801.28	3,715.23	213.55	18,390.26
On Road	5,274.24	1,671.33	1,847.18	52.44	1,865.79
Off Highway	10,638.38	4,195.42	629.31	89.90	10,392.77
New Year	15,912.62	5,866.74	2,476.49	142.34	12,258.55
On Road	3,296.07	1,044.47	1,154.37	32.77	1,166.00
Off Highway	6,648.33	2,621.88	393.28	56.18	6,494.83
Martin Luther King's Birthday	9,944.40	3,666.35	1,547.66	88.96	7,660.83
On Road	6,594.50	2,089.70	2,309.57	65.57	2,332.83
Off Highway	13,301.41	5,245.63	786.84	112.41	12,994.31
President's Day	19,895.91	7,335.32	3,096.42	177.98	15,327.15
On Road	5,274.24	1,671.33	1,847.18	52.44	1,865.79
Off Highway	10,638.38	4,195.42	629.31	89.90	10,392.77
Easter	15,912.62	5,866.74	2,476.49	142.34	12,258.55

Peak Day Baseline (2012-2013)	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	17072.6	6294.41	2657.02	152.72	13152.17
Thanksgiving	29262.69	10788.71	4554.18	261.77	22543
New Year	19507.93	7192.28	3036.04	174.51	15028.26
Martin Luther King's Birthday	12190.09	4494.3	1897.15	109.05	9390.84
President's Day	24380.17	8988.6	3794.31	218.09	18781.68
Easter	19507.93	7192.28	3036.04	174.51	15028.26

Net Emissions	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	-3144.12	-1159.19	-489.32	-28.12	-2422.13
Thanksgiving	-5390.61	-1987.43	-838.95	-48.22	-4152.74
New Year	-3595.31	-1325.54	-559.55	-32.17	-2769.71
Martin Luther King's Birthday	-2245.69	-827.95	-349.49	-20.09	-1730.01
President's Day	-4484.26	-1653.28	-697.89	-40.11	-3454.53
Easter	-3595.31	-1325.54	-559.55	-32.17	-2769.71
Significance Threshold	550	137	137	137	137

FUGITIVE PM10 EMISSION FACTORS

(I) POTENTIAL SOURCES:

(1) OHV travel on Unpaved Surfaces.
(2) Motor Vehicle Travel on Paved Roads.

(II) EMISSION FACTORS AND ASSUMPTIONS:

(1) OHV Travel on Unpaved Roads.

Emission Factor (SCAQMD Table A9-9-D): (reference 1)

EF(1) = 2.1 (G/12) (H/30) [(J/3)^0.7] [(I/4)^0.5] [(365-K)/365] lb/vehicle mile traveled (vmt)
where:

G = Silt Loading (%):	6	(reference 1)
H = Mean Vehicle Speed (mph):	15	(reference 1)
J = Mean Vehicle Weight (tons) - see tables below		(reference 1)
I = Number of Wheels - see tables below		(reference 1)
K = Number of Days > 0.01 in. Precipitation:	18	(reference 1)

4-Wheel All Terrain Vehicles		
Parameter	Loaded	Unloaded
J	1	0.5
I	4	4
PM10 Emission Rate lb/VMT	0.23	0.14

Off-Highway Motorcycles		
Parameter	Loaded	Unloaded
J	0.35	0.25
I	2	2
PM10 Emission Rate lb/VMT	0.080	0.060

Average OHV Emission Rate = 0.16

	OHV	Estimated Emission Rate	
Annual OHV	29,466,045	2283.62	tons
Halloween	55,525	8606.38	pounds
Thanksgiving	95,165	14750.52	pounds
New Year	63,435	9832.38	pounds
Martin Luther King	39,643	6144.63	pounds
Presidents Day	79,314	12293.65	pounds
Easter	63,435	9832.38	pounds

(2) Passenger Vehicle Travel on Paved Highways.
Emission Factor (SCAQMD Table A9-9-B):

EF(2) = V x G lb

V = Vehicle Miles Traveled

G = 0.0064 lb/VMT (For Major Streets/Highways with street cleaning)

VMT =	14031450	
EF(2) =	89801.28	lbs
	44.90	tons
	Estimated Emission Rate	
Halloween	1522.9728	pounds
Peak Arrival day (veh/day	237964.5	
Thanksgiving	2610.2304	pounds
Peak Arrival day (veh/day	407848.5	
New Year	1739.9232	pounds
Peak Arrival day (veh/day	271863	
Martin Luther King	1087.344	pounds
Peak Arrival day (veh/day	169897.5	
Presidents Day	2175.4656	pounds
Peak Arrival day (veh/day	339916.5	
Easter	1739.9232	pounds
Peak Arrival day (veh/day	271863	

TABLE
OPERATIONAL EMISSIONS FROM OHV SOURCE

Emission Factors (EF) from Table A9-8-B: lb/hp-hr

Off-Highway Vehicle Use	HP rating	Loading percent	Max hrs/day	Max-daily HP-Hr	EF unit	EF CO	lb/day CO	EF ROG	lb/day ROG	EF NOx	lb/day NOx	EF SOx	lb/day SOx	EF PM10	lb/day PM10
Motorcycles	25	100%	6	150	g/hp-hr	80	1.0582011	10	0.1323	1.5	0.01984	0.95	0.0126	8.2	0.1085
All Terrain Vehicles	125	100%	6	750	g/hp-hr	97.5	1.2896825	60	0.7937	9	0.11905	0.55	0.0073	1.15	0.0152
TOTAL, lb							**2.35**		**0.93**		**0.14**		**0.02**		**0.12**
Annual	841,887						988.32634		389.76		58.4644		8.3521		52.061
Halloween	15,864						9311.8824		3672.3		550.844		78.692		490.51
Thanksgiving	27,190						15959.68		6294		944.094		134.87		840.69
New Year	18,124						10638.378		4195.4		629.313		89.902		560.39
MLK	11,327						6648.3259		2621.9		393.281		56.183		350.21
Presidents	22,661						13301.406		5245.6		786.844		112.41		700.67
Easter	18,124						10638.378		4195.4		629.313		89.902		560.39
AQ Significance Thresholds							**550**		**137**		**137**		**137**		**137**

Source: EPA Nonroad Engine and Vehicle Study, 1991

On-Road Mobile Source Emissions Factors

	Running Exhaust					Start-Up	Start-Up	Hot Soak	Diurnal	Start-Up
	CO	ROG	NOx	SOx	PM10	CO	ROG	ROG	ROG	NOx
Vehicle Type	g/mile	g/mile	g/mile	g/mile	g/mile	g/trip	g/trip	g/trip	g/trip	g/trip
Light-Duty Trucks - Cat	3.24	0.16	0.72	0.01	0.04	45.7	4.08	0.62	18.96	2.42
Heavy Heavy Duty Diesel Truck	7.2	1.22	9.2	0.32	0.72	0	0	0	0	0

Estimated Vehicle Emissions
Annual Average

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10	
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/year	lb/day	lb/day	lb/day	lb/day	
Light-Duty Trucks - Cat	701572.5	15	10523588	1403145	216534.722	76826.080	24190.022	232.001	928.006	
Heavy Heavy Duty Diesel Truck	233857.5	15	3507862.5	467715	55680.357	9434.727	71147.123	2474.683	5568.036	
Total Off-Site			14031450		**136.108**	**43.130**	**47.669**	**1.353**	**3.248**	**Tons/year**

Halloween

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	11,898	15	178473.38	23796.45	3672.292	1302.922	410.247	3.935	15.738
Heavy Heavy Duty Diesel Truck	3,966	15	59491.125	7932.15	944.304	160.007	1206.610	41.969	94.430
Total Off-Site			237964.5		**4616.595**	**1462.929**	**1616.858**	**45.904**	**110.169**

Thanksgiving

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	20,392	15	305886.38	40784.85	6293.958	2233.084	703.125	6.744	26.974
Heavy Heavy Duty Diesel Truck	6,797	15	101962.13	13594.95	1618.446	274.237	2068.015	71.931	161.845
Total Off-Site			407848.5		**7912.405**	**2507.320**	**2771.140**	**78.674**	**188.819**

New Year

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	13,593	15	203897.25	27186.3	4195.417	1488.525	468.688	4.495	17.980
Heavy Heavy Duty Diesel Truck	4,531	15	67965.75	9062.1	1078.821	182.800	1378.494	47.948	107.882
Total Off-Site			271863		**5274.238**	**1671.326**	**1847.182**	**52.443**	**125.863**

Martin Luther King's Birthday

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	8,495	15	127423.13	16989.75	2621.875	930.236	292.901	2.809	11.237
Heavy Heavy Duty Diesel Truck	2,832	15	42474.375	5663.25	674.196	114.239	861.473	29.964	67.420
Total Off-Site			169897.5		**3296.071**	**1044.475**	**1154.374**	**32.773**	**78.656**

President's Day

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	16,996	15	254937.38	33991.65	5245.625	1861.137	586.011	5.620	22.481
Heavy Heavy Duty Diesel Truck	5,665	15	84979.125	11330.55	1348.875	228.559	1723.563	59.950	134.888
Total Off-Site			339916.5		**6594.500**	**2089.696**	**2309.574**	**65.570**	**157.369**

Easter

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	13,593	15	203897.25	27186.3	4195.417	1488.525	468.688	4.495	17.980
Heavy Heavy Duty Diesel Truck	4,531	15	67965.75	9062.1	1078.821	182.800	1378.494	47.948	107.882
Total Off-Site			271863		**5274.238**	**1671.326**	**1847.182**	**52.443**	**125.863**

SOURCE: CARB MVEI7G Program, 2001 South Coast Air Basin (summer), non-enhanced I/M, 35 mph

ASSUMPTIONS:

1. The hydrocarbon emission factors presented are Reactive Organic Gas (ROG) Efs. The ROG number is a combination of the ROG exhaust + running evaporative losses.
2. The PM10 emission factors are Total PM10 Efs. The PM10 Efs include the exhaust PM + Tire Wear PM + Brake Wear PM.
3. Emission factors from EMFAC7G (updated February 2000) were used.
4. All summertime emission factors were calculated at 75 F.
5. Emission factors assume 100% weighting to summertime fuel mix.
6. Emission factors include Running Exhaust, Running Evaporative Losses, and PM10 from tire wear and brake wear.
7. Sulfur oxide as SO2 emissions were calculated by converting the total daily SO2 mass into grams and then dividing by the total daily vehicle miles traveled. The total daily SO2 and total daily vehicle miles traveled were obtained from the BURDEN output for each modeled year.

Alternative 3 **Number of Vehicle Trips**

	OHV Use	Other Use	Total
Annual Vehicle Trips	765,261	85,029	850,290
Peak Day Vehicle Trips			
Halloween	16,072	1,786	17,858
Thanksgiving	27,546	3,061	30,607
New Year	18,372	2,041	20,413
Martin Luther King's Birthday	11,474	1,275	12,749
President's Day	22,959	2,551	25,510
Easter	18,372	2,041	20,413

Summary of Estimated Annual Emissions

Annual Vehicle Trips	**CO tons/year**	**ROG tons/year**	**NOx tons/year**	**SOx tons/year**	**PM10 tons/year**
On Road	123.72	39.20	43.33	1.23	43.77
Off Highway	898.37	354.29	53.14	7.59	2123.09
Total	1022.09	393.49	96.47	8.82	2166.86
Future Baseline	1236.39	476	116.7	10.67	2621.19
Net Emissions	-214.30	-82.51	-20.23	-1.85	-454.33
De Minimis Threshold	100.00	50.00	100.00	100.00	100.00

Summary of Estimated Peak Daily Emissions

(2012-2013) Peak Day Vehicle Trips	**CO lb/day**	**ROG lb/day**	**NOx lb/day**	**SOx lb/day**	**PM10 lb/day**
On Road	4,677.10	1,482.10	1,638.05	46.51	1,654.54
Off Highway	9,433.91	3,720.42	558.06	79.72	9,216.11
Halloween	14,111.01	5,202.52	2,196.11	126.23	10,870.65
On Road	8,016.12	2,540.19	2,807.46	79.71	2,835.74
Off Highway	16,168.88	6,376.46	956.47	136.64	15,795.58
Thanksgiving	24,185.00	8,916.64	3,763.93	216.34	18,631.32
On Road	5,346.26	1,694.15	1,872.41	53.16	1,891.26
Off Highway	10,783.65	4,252.71	637.91	91.13	10,534.69
New Year	16,129.92	5,946.86	2,510.31	144.29	12,425.95
On Road	3,339.02	1,058.09	1,169.42	33.20	1,181.19
Off Highway	6,734.96	2,656.04	398.41	56.92	6,579.47
Martin Luther King's Birthday	10,073.99	3,714.13	1,567.82	90.12	7,760.67
On Road	6,681.19	2,117.17	2,339.94	66.43	2,363.50
Off Highway	13,476.26	5,314.58	797.19	113.88	13,165.13
President's Day	20,157.46	7,431.75	3,137.12	180.32	15,528.64
On Road	5,346.26	1,694.15	1,872.41	53.16	1,891.26
Off Highway	10,783.65	4,252.71	637.91	91.13	10,534.69
Easter	16,129.92	5,946.86	2,510.31	144.29	12,425.95

Peak Day Baseline (2012-2013)	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	17072.6	6294.41	2657.02	152.72	13152.17
Thanksgiving	29262.69	10788.71	4554.18	261.77	22543
New Year	19507.93	7192.28	3036.04	174.51	15028.26
Martin Luther King's Birthday	12190.09	4494.3	1897.15	109.05	9390.84
President's Day	24380.17	8988.6	3794.31	218.09	18781.68
Easter	19507.93	7192.28	3036.04	174.51	15028.26

Net Emissions	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	-2961.59	-1091.89	-460.91	-26.49	-2281.52
Thanksgiving	-5077.69	-1872.07	-790.25	-45.43	-3911.68
New Year	-3378.01	-1245.42	-525.73	-30.22	-2602.31
Martin Luther King's Birthday	-2116.10	-780.17	-329.33	-18.93	-1630.17
President's Day	-4222.71	-1556.85	-657.19	-37.77	-3253.04
Easter	-3378.01	-1245.42	-525.73	-30.22	-2602.31
Significance Threshold	550	137	137	137	137

FUGITIVE PM10 EMISSION FACTORS

(I) POTENTIAL SOURCES:

(1) OHV travel on Unpaved Surfaces.
(2) Motor Vehicle Travel on Paved Roads.

(II) EMISSION FACTORS AND ASSUMPTIONS:

(1) OHV Travel on Unpaved Roads.

Emission Factor (SCAQMD Table A9-9-D): (reference 1)

EF(1) = 2.1 (G/12) (H/30) [(J/3)^0.7] [(I/4)^0.5] [(365-K)/365] lb/vehicle mile traveled (vmt)
where:

G = Silt Loading (%):	6	(reference 1)
H = Mean Vehicle Speed (mph):	15	(reference 1)
J = Mean Vehicle Weight (tons) - see tables below		(reference 1)
I = Number of Wheels - see tables below		(reference 1)
K = Number of Days > 0.01 in. Precipitation:	18	(reference 1)

4-Wheel All Terrain Vehicles		
Parameter	Loaded	Unloaded
J	1	0.5
I	4	4
PM10 Emission Rate lb/VMT	0.23	0.14

Off-Highway Motorcycles		
Parameter	Loaded	Unloaded
J	0.35	0.25
I	2	2
PM10 Emission Rate lb/VMT	0.080	0.060

Average OHV Emission Rate = 0.16

	OHV	Estimated Emission Rate	
Annual OHV	26,784,135	2075.77	tons
Halloween	56,253	8719.17	pounds
Thanksgiving	96,412	14943.87	pounds
New Year	64,301	9966.65	pounds
Martin Luther King	40,159	6224.70	pounds
Presidents Day	80,357	12455.26	pounds
Easter	64,301	9966.65	pounds

(2) Passenger Vehicle Travel on Paved Highways.
Emission Factor (SCAQMD Table A9-9-B):

EF(2) = V x G lb

V = Vehicle Miles Traveled

G = 0.0064 lb/VMT (For Major Streets/Highways with street cleaning)

VMT =	12754350	
EF(2) =	81627.84	pounds
	40.81	tons
	Estimated Emission Rate	
Halloween	1542.9312	pounds
Peak Arrival day (veh/day	241083	
Thanksgiving	2644.4448	pounds
Peak Arrival day (veh/day	413194.5	
New Year	1763.6832	pounds
Peak Arrival day (veh/day	275575.5	
Martin Luther King	1101.5136	pounds
Peak Arrival day (veh/day	172111.5	
Presidents Day	2204.064	pounds
Peak Arrival day (veh/day	344385	
Easter	1763.6832	pounds
Peak Arrival day (veh/day	275575.5	

TABLE
OPERATIONAL EMISSIONS FROM OHV SOURCE

Emission Factors (EF) from Table A9-8-B: lb/hp-hr

Off-Highway Vehicles	*HP rating*	*Loading percent*	*Max hrs/day*	*Max-daily HP-Hr*	*EF unit*	*EF CO*	*lb/day CO*	*EF ROG*	*lb/day ROG*	*EF NOx*	*lb/day NOx*	*EF SOx*	*lb/day SOx*	*EF PM10*	*lb/day PM10*
Motorcycles	25	100%	6	150	g/hp-hr	80	1.0582011	10	0.1323	1.5	0.01984	0.95	0.0126	8.2	0.1085
All Terrain Vehicles	125	100%	6	750	g/hp-hr	97.5	1.2896825	60	0.7937	9	0.11905	0.55	0.0073	1.15	0.0152
TOTAL, lb							**2.35**		**0.93**		**0.14**		**0.02**		**0.12**
Annual	765,261						898.37188		354.29		53.1431		7.5919		47.323
Halloween	16,072						9433.9137		3720.4		558.063		79.723		496.94
Thanksgiving	27,546						16168.876		6376.5		956.469		136.64		851.71
New Year	18,372						10783.653		4252.7		637.906		91.129		568.04
MLK	11,474						6734.9628		2656		398.406		56.915		354.77
Presidents	22,959						13476.265		5314.6		797.188		113.88		709.88
Easter	18,372						10783.653		4252.7		637.906		91.129		568.04
AQ Significance Thresholds							**550**		**137**		**137**		**137**		**137**

Source: EPA Nonroad Engine and Vehicle Study, 1991

On-Road Mobile Source Emissions Factors

	Running Exhaust					Start-Up	Start-Up	Hot Soak	Diurnal	Start-Up
	CO	ROG	NOx	SOx	PM10	CO	ROG	ROG	ROG	NOx
Vehicle Type	g/mile	g/mile	g/mile	g/mile	g/mile	g/trip	g/trip	g/trip	g/trip	g/trip
Light-Duty Trucks - Cat	3.24	0.16	0.72	0.01	0.04	45.7	4.08	0.62	18.96	2.42
Heavy Heavy Duty Diesel Truck	7.2	1.22	9.2	0.32	0.72	0	0	0	0	0

Estimated Vehicle Emissions
Annual Average

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10	
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/year	lb/day	lb/day	lb/day	lb/day	
Light-Duty Trucks - Cat	637717.5	15	9565762.5	1275435	196826.389	69833.603	21988.319	210.885	843.542	
Heavy Heavy Duty Diesel Truck	212572.5	15	3188587.5	425145	50612.500	8576.007	64671.528	2249.444	5061.250	
Total Off-Site			12754350		**123.719**	**39.205**	**43.330**	**1.230**	**2.952**	**Tons/year**

Halloween

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	12,054	15	180812.25	24108.3	3720.417	1319.996	415.624	3.986	15.945
Heavy Heavy Duty Diesel Truck	4,018	15	60270.75	8036.1	956.679	162.104	1222.423	42.519	95.668
Total Off-Site			241083		**4677.095**	**1482.100**	**1638.046**	**46.505**	**111.613**

Thanksgiving

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	20,660	15	309895.88	41319.45	6376.458	2262.354	712.341	6.832	27.328
Heavy Heavy Duty Diesel Truck	6,887	15	103298.63	13773.15	1639.661	277.831	2095.122	72.874	163.966
Total Off-Site			413194.5		**8016.119**	**2540.186**	**2807.464**	**79.706**	**191.294**

New Year

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	13,779	15	206681.63	27557.55	4252.708	1508.852	475.088	4.556	18.226
Heavy Heavy Duty Diesel Truck	4,593	15	68893.875	9185.85	1093.554	185.297	1397.318	48.602	109.355
Total Off-Site			275575.5		**5346.262**	**1694.149**	**1872.407**	**53.159**	**127.581**

Martin Luther King's Birthday

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	8,606	15	129083.63	17211.15	2656.042	942.358	296.718	2.846	11.383
Heavy Heavy Duty Diesel Truck	2,869	15	43027.875	5737.05	682.982	115.728	872.699	30.355	68.298
Total Off-Site			172111.5		**3339.024**	**1058.086**	**1169.417**	**33.201**	**79.681**

President's Day

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	17,219	15	258288.75	34438.5	5314.583	1885.603	593.715	5.694	22.777
Heavy Heavy Duty Diesel Truck	5,740	15	86096.25	11479.5	1366.607	231.564	1746.220	60.738	136.661
Total Off-Site			344385		**6681.190**	**2117.167**	**2339.935**	**66.432**	**159.438**

Easter

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	13,779	15	206681.63	27557.55	4252.708	1508.852	475.088	4.556	18.226
Heavy Heavy Duty Diesel Truck	4,593	15	68893.875	9185.85	1093.554	185.297	1397.318	48.602	109.355
Total Off-Site			275575.5		**5346.262**	**1694.149**	**1872.407**	**53.159**	**127.581**

SOURCE: CARB MVEI7G Program, 2001 South Coast Air Basin (summer), non-enhanced I/M, 35 mph

ASSUMPTIONS:

1. The hydrocarbon emission factors presented are Reactive Organic Gas (ROG) Efs. The ROG number is a combination of the ROG exhaust + running evaporative losses.
2. The PM10 emission factors are Total PM10 Efs. The PM10 Efs include the exhaust PM + Tire Wear PM + Brake Wear PM.
3. Emission factors from EMFAC7G (updated February 2000) were used.
4. All summertime emission factors were calculated at 75 F.
5. Emission factors assume 100% weighting to summertime fuel mix.
6. Emission factors include Running Exhaust, Running Evaporative Losses, and PM10 from tire wear and brake wear.
7. Sulfur oxide as SO2 emissions were calculated by converting the total daily SO2 mass into grams and then dividing by the total daily vehicle miles traveled. The total daily SO2 and total daily vehicle miles traveled were obtained from the BURDEN output for each modeled year.

Alternative 4 **Number of Vehicle Trips**

	OHV Use	Other Use	Total
Annual Vehicle Trips	925,714	102,857	1,028,571
Peak Day Vehicle Trips			
Halloween	19,445	2,161	21,606
Thanksgiving	33,330	3,703	37,033
New Year	22,219	2,469	24,688
Martin Luther King's Birthday	13,884	1,543	15,427
President's Day	27,769	3,085	30,854
Easter	22,219	2,469	24,688

Summary of Estimated Annual Emissions

Annual Vehicle Trips	**CO tons/year**	**ROG tons/year**	**NOx tons/year**	**SOx tons/year**	**PM10 tons/year**
Alternative 4					
On Road	149.66	47.42	52.41	1.49	52.94
Off Highway	1086.73	428.57	64.29	9.18	2568.24
Total	1236.39	476.00	116.70	10.67	2621.19
Existing Condition	599.25	230.21	56.38	5.14	1263.64
Net Emissions	637.14	245.79	60.32	5.53	1357.55
De Minimis Threshold	100.00	50.00	100.00	100.00	100.00

Summary of Estimated Peak Daily Emissions

(2012-2013) Peak Day Vehicle Trips	**CO lb/day**	**ROG lb/day**	**NOx lb/day**	**SOx lb/day**	**PM10 lb/day**
On Road	5658.71	1793.16	1981.84	56.27	2001.80
Off Highway	11413.89	4501.25	675.19	96.46	11150.37
Halloween	17072.60	6294.41	2657.02	152.72	13152.17
On Road	9699.12	3073.50	3396.90	96.44	3431.11
Off Highway	19563.57	7715.21	1157.28	165.33	19111.90
Thanksgiving	29262.69	10788.71	4554.18	261.77	22543.00
On Road	6465.91	2048.95	2264.54	64.29	2287.34
Off Highway	13042.03	5143.33	771.50	110.21	12740.92
New Year	19507.93	7192.28	3036.04	174.51	15028.26
On Road	4040.41	1280.34	1415.06	40.17	1429.31
Off Highway	8149.68	3213.96	482.09	68.87	7961.53
Martin Luther King's Birthday	12190.09	4494.30	1897.15	109.05	9390.84
On Road	8080.81	2560.69	2830.12	80.35	2858.62
Off Highway	16299.36	6427.92	964.19	137.74	15923.05
President's Day	24380.17	8988.60	3794.31	218.09	18781.68
On Road	6465.91	2048.95	2264.54	64.29	2287.34
Off Highway	13042.03	5143.33	771.50	110.21	12740.92
Easter	19507.93	7192.28	3036.04	174.51	15028.26

Peak Day Baseline (2012-2013)	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	17072.6	6294.41	2657.02	152.72	13152.17
Thanksgiving	29262.69	10788.71	4554.18	261.77	22543
New Year	19507.93	7192.28	3036.04	174.51	15028.26
Martin Luther King's Birthday	12190.09	4494.3	1897.15	109.05	9390.84
President's Day	24380.17	8988.6	3794.31	218.09	18781.68
Easter	19507.93	7192.28	3036.04	174.51	15028.26

Net Emissions	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Halloween	0.00	0.00	0.00	0.00	0.00
Thanksgiving	0.00	0.00	0.00	0.00	0.00
New Year	0.00	0.00	0.00	0.00	0.00
Martin Luther King's Birthday	0.00	0.00	0.00	0.00	0.00
President's Day	0.00	0.00	0.00	0.00	0.00
Easter	0.00	0.00	0.00	0.00	0.00
Significance Threshold	550	137	137	137	137

FUGITIVE PM10 EMISSION FACTORS

(I) POTENTIAL SOURCES:

(1) OHV travel on Unpaved Surfaces.
(2) Motor Vehicle Travel on Paved Roads.

(II) EMISSION FACTORS AND ASSUMPTIONS:

(1) OHV Travel on Unpaved Roads.

Emission Factor (SCAQMD Table A9-9-D): (reference 1)

EF(1) = 2.1 (G/12) (H/30) [(J/3)^0.7] [(I/4)^0.5] [(365-K)/365] lb/vehicle mile traveled (vmt)
where:

G = Silt Loading (%):	6	(reference 1)
H = Mean Vehicle Speed (mph):	15	(reference 1)
J = Mean Vehicle Weight (tons) - see tables below		(reference 1)
I = Number of Wheels - see tables below		(reference 1)
K = Number of Days > 0.01 in. Precipitation:	18	(reference 1)

4-Wheel All Terrain Vehicles		
Parameter	Loaded	Unloaded
J	1	0.5
I	4	4
PM10 Emission Rate lb/VMT	0.23	0.14

Off-Highway Motorcycles		
Parameter	Loaded	Unloaded
J	0.35	0.25
I	2	2
PM10 Emission Rate lb/VMT	0.080	0.060

Average OHV Emission Rate = 0.16

	OHV	Estimated Emission Rate	
Annual OHV	32,399,990	2511.00	tons
Halloween	68,059	10549.13	pounds
Thanksgiving	116,654	18081.36	pounds
New Year	77,767	12053.92	pounds
Martin Luther King	48,595	7532.23	pounds
Presidents Day	97,190	15064.47	pounds
Easter	77,767	12053.92	pounds

(2) Passenger Vehicle Travel on Paved Highways.
Emission Factor (SCAQMD Table A9-9-B):

EF(2) = V x G lb

V = Vehicle Miles Traveled

G = 0.0064 lb/VMT (For Major Streets/Highways with street cleaning)

VMT =	15428565	
EF(2) =	98742.816	
	49.37	tons
	Estimated Emission Rate	
Halloween	1866.758602	pounds
Peak Arrival day (veh/day)	291681.0315	
Thanksgiving	3199.651546	pounds
Peak Arrival day (veh/day)	499945.554	
New Year	2133.04343	pounds
Peak Arrival day (veh/day)	333288.036	
Martin Luther King	1332.892944	pounds
Peak Arrival day (veh/day)	208264.5225	
Presidents Day	2665.785888	pounds
Peak Arrival day (veh/day)	416529.045	
Easter	2133.04343	pounds
Peak Arrival day (veh/day)	333288.036	

TABLE
OPERATIONAL EMISSIONS FROM OHV SOURCE

Emission Factors (EF) from Table A9-8-B: lb/hp-hr

Off-Highway Vehicles	*HP rating*	*Loading percent*	*Max hrs/day*	*Max-daily HP-Hr*	*EF unit*	*EF CO*	*lb/day CO*	*EF ROG*	*lb/day ROG*	*EF NOx*	*lb/day NOx*	*EF SOx*	*lb/day SOx*	*EF PM10*	*lb/day PM10*
Motorcycles	25	100%	6	150	g/hp-hr	80	1.0582011	10	0.1323	1.5	0.01984	0.95	0.0126	8.2	0.1085
All Terrain Vehicles	125	100%	6	750	g/hp-hr	97.5	1.2896825	60	0.7937	9	0.11905	0.55	0.0073	1.15	0.0152
TOTAL, lb							**2.35**		**0.93**		**0.14**		**0.02**		**0.12**
Annual	925,714						1086.7344		428.57		64.2857		9.1837		57.245
Halloween	19,445						11413.885		4501.3		675.188		96.455		601.24
Thanksgiving	33,330						19563.566		7715.2		1157.28		165.33		1030.5
New Year	22,219						13042.025		5143.3		771.5		110.21		687
MLK	13,884						8149.6809		3214		482.094		68.871		429.29
Presidents	27,769						16299.362		6427.9		964.188		137.74		858.59
Easter	22,219						13042.025		5143.3		771.5		110.21		687
AQ Significance Thresholds							**550**		**137**		**137**		**137**		**137**

Source: EPA Nonroad Engine and Vehicle Study, 1991

On-Road Mobile Source Emissions Factors

	Running Exhaust					Start-Up	Start-Up	Hot Soak	Diurnal	Start-Up
	CO	ROG	NOx	SOx	PM10	CO	ROG	ROG	ROG	NOx
Vehicle Type	g/mile	g/mile	g/mile	g/mile	g/mile	g/trip	g/trip	g/trip	g/trip	g/trip
Light-Duty Trucks - Cat	3.24	0.16	0.72	0.01	0.04	45.7	4.08	0.62	18.96	2.42
Heavy Heavy Duty Diesel Truck	7.2	1.22	9.2	0.32	0.72	0	0	0	0	0

Estimated Vehicle Emissions
Annual Average

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10	
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/year	lb/day	lb/day	lb/day	lb/day	
Light-Duty Trucks - Cat	771428.25	15	11571424	1542856.5	238095.139	84475.672	26598.628	255.102	1020.408	
Heavy Heavy Duty Diesel Truck	257142.75	15	3857141.3	514285.5	61224.464	10374.145	78231.260	2721.087	6122.446	
Total Off-Site			15428565		**149.660**	**47.425**	**52.415**	**1.488**	**3.571**	**Tons/year**

Halloween

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	14,584	15	218760.77	29168.103	4501.250	1597.035	502.854	4.823	19.291
Heavy Heavy Duty Diesel Truck	4,861	15	72920.258	9722.7011	1157.464	196.126	1478.982	51.443	115.746
Total Off-Site			291681.03		**5658.715**	**1793.160**	**1981.836**	**56.266**	**135.038**

Thanksgiving

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	24,997	15	374959.17	49994.555	7715.209	2737.341	861.899	8.266	33.065
Heavy Heavy Duty Diesel Truck	8,332	15	124986.39	16664.852	1983.911	336.163	2534.997	88.174	198.391
Total Off-Site			499945.55		**9699.120**	**3073.503**	**3396.896**	**96.440**	**231.456**

New Year

	Average	VMT/trip	Total VMT	Starts	CO	ROG	NOx	SOx	PM10
Vehicle Type	worker/day	mi/trip	mi/day	No.Day	lb/day	lb/day	lb/day	lb/day	lb/day
Light-Duty Trucks - Cat	16,664	15	249966.03	33328.804	5143.334	1824.844	574.584	5.511	22.043
Heavy Heavy Duty Diesel Truck	5,555	15	83322.009	11109.601	1322.572	224.102	1689.953	58.781	132.257
Total Off-Site			333288.04		**6465.905**	**2048.947**	**2264.536**	**64.292**	**154.300**

Martin Luther King's Birthday

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	10,413	15	156198.39	20826.452	3213.959	1140.306	359.045	3.444	13.774
Heavy Heavy Duty Diesel Truck	3,471	15	52066.131	6942.1507	826.447	140.037	1056.015	36.731	82.645
Total Off-Site			208264.52		**4040.405**	**1280.343**	**1415.060**	**40.174**	**96.419**

President's Day

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	20,826	15	312396.78	41652.904	6427.917	2280.612	718.090	6.887	27.548
Heavy Heavy Duty Diesel Truck	6,942	15	104132.26	13884.301	1652.893	280.074	2112.030	73.462	165.289
Total Off-Site			416529.04		**8080.810**	**2560.686**	**2830.120**	**80.349**	**192.838**

Easter

Vehicle Type	Average worker/day	VMT/trip mi/trip	Total VMT mi/day	Starts No.Day	CO lb/day	ROG lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Light-Duty Trucks - Cat	16,664	15	249966.03	33328.804	5143.334	1824.844	574.584	5.511	22.043
Heavy Heavy Duty Diesel Truck	5,555	15	83322.009	11109.601	1322.572	224.102	1689.953	58.781	132.257
Total Off-Site			333288.04		**6465.905**	**2048.947**	**2264.536**	**64.292**	**154.300**

SOURCE: CARB MVEI7G Program, 2001 South Coast Air Basin (summer), non-enhanced I/M, 35 mph

ASSUMPTIONS:

1. The hydrocarbon emission factors presented are Reactive Organic Gas (ROG) Efs. The ROG number is a combination of the ROG exhaust + running evaporative losses.
2. The PM10 emission factors are Total PM10 Efs. The PM10 Efs include the exhaust PM + Tire Wear PM + Brake Wear PM.
3. Emission factors from EMFAC7G (updated February 2000) were used.
4. All summertime emission factors were calculated at 75 F.
5. Emission factors assume 100% weighting to summertime fuel mix.
6. Emission factors include Running Exhaust, Running Evaporative Losses, and PM10 from tire wear and brake wear.
7. Sulfur oxide as SO2 emissions were calculated by converting the total daily SO2 mass into grams and then dividing by the total daily vehicle miles traveled. The total daily SO2 and total daily vehicle miles traveled were obtained from the BURDEN output for each modeled year.